EPSOM SALT WITH GLYCERIN ON JOINT PAIN AMONG ELDERLY PEOPLE WITH OSTEOARTHRITIS

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Abstract:

Osteoarthritis is a disorder of cartilage which leads to degradation of joint and inflammation of the synovial membrane. Osteoarthritis affects every aspect of an individual's day-to-day activities and quality of life. Pain in the knee joint is the primary reason for access treatment. Epsom salt is a natural mineral. Epsom salt with glycerin application has been used for joint pain relief. The aim and objectives of the study was to assess the pre test level of pain, to determine the effectiveness of epsom salt with glycerin application on knee joint pain, to assess the post-test level of pain in patients with osteoarthritis and to find out association of post test level of pain with the selected demographic and clinical variable. The investigation was conducted in an experimental method and Kansarakui, Mehsana, Gujarat, India was the location of the study. The study's research design is quasi experimental pre test post test design. The sample was chosen using a non probability convenience sampling technique. For this trial, 60 elderly people were chosen and they were given 2 spoon of glycerin with 2 spoon of epsom salt twice a day for ten days to reduce pain. Pre test and post test done by were done by numerical pain rating scale. The analysis of data was done by descriptive and inferential statistics. The study identified that 6.66 % had moderate pain, 10 % had mild pain and 70% had severe pain and 13.3% had unbearable pain for the pre-experimental group. The study result shows that the pre-test mean value for is 7 and pre-test SD 2.22 and the post-test mean value is 3 and post-test SD is 2.88. The mean difference is 3.05. The calculated 't' value is 9.062 is higher than the table value 2.043. The study concluded that Epsom salt with glycerin application found to be effective non-pharmacological measures to reduce joint pain among elderly people.

Keywords: Epsom salt, Glycerine, Joint pain, Elderly people, Osteoarthritis

I. Introduction

Osteoarthritis is a widespread source of discomfort and incapacity, particularly among the elderly. (1) Osteoarthritis is a condition characterized by the progressive loss of articular cartilage and remodeling of the underlying bone. (2) Although osteoarthritis can affect practically any joint, it most frequently affects the knee and hip joints. Osteoarthritis is thought to affect 10%–15% of all adults over 60, with prevalence rates being higher in women than in males, obese people, and people with sedentary jobs. (3, 4) Osteoarthritis is the most prevalent joint disease and the second most prevalent rheumatologic condition. (5) There is no recognized cause for osteoarthritis. However, it is firmly accepted that ageing, wear and strain, or degenerative changes in the joints are to blame for its occurrence. Everyone's activities are limited by the illness. (6, 7, 8)

The treatment of knee osteoarthritis has been suggested in a number of ways. (9) It can have a detrimental effect on people's physical and mental well-being and is a leading cause of disability. (10) The specific alternative treatment alternatives that a patient can choose from, A bath with Epsom salts works well as an alternate treatment. Epsom salts have strong anti-inflammatory effects, a high sulphate and magnesium content, and warm water produce a potent system for effectively reducing knee arthritis-related pain and inflammation. (5) To relieve minor aches and pains, epsom salt is a common component in baths. Its decrease edema and relax tense muscles. Avoid using overly hot water when taking an Epsom salt bath to relieve aches and pains. Joint discomfort can be effectively treated with an epsom salt hot water bath. When applied topically, epsom salt can instantly relieve joint pain. Measurements of pain are used to make an accurate diagnosis, choose a course of treatment, and assess the success of that treatment. They assist in determining the degree, kind, and duration of the pain. (6, 11)

II. Methodology:

The investigation was conducted in an experimental method and Kansarakui, Mehsana, Gujarat, India was the location of the study. The study's research design is quasi experimental pre test post test design. The sample was chosen using a non probability convenience sampling technique. For this trial, 60 elderly people were chosen and they were given 2 table spoon of glycerin with 2 table spoon of epsom salt twice a day for ten days to reduce pain. Daily record sheet was provided for maintaining the daily intake. Pre tests and post test were done by numerical pain rating scale. The analysis of data was done by descriptive and inferential statistics. The study identified that 6.66 % had moderate pain, 10 % had mild pain and 70% had severe pain and 13.3% had unbearable pain for the pre-experimental group. The study result shows that the pre-test mean value for is 7 and pre-test SD 2.22 and the post-test mean value is 3 and post-test SD is 2.88. The mean difference is 3.05. The calculated 't' value is 9.062 is higher than the table value 2.043. The study concluded that Epsom salt with glycerin application found to be effective non-pharmacological measures to reduce joint pain among elderly people.

III. Data analysis:

The investigator analyzed the data in the following manner. Personal information of the respondent analyzed using frequency and percentages and presented in the form of table and graph. Analysis of the data from numerical pain scale before and after administration of epsam salt with glycerine have been analyzed (manually) by using mean, standard deviation, Unpaired 't' test, chi square test and presented in the form of table and graphs.

IV. Results

Table 1: Comparison of post test score on the level of pain among elderly people with osteoarthritis in experimental and control group.

(N_1= 30 N_2 = 30)

Group	Mean	SD	't' value	Table value	Inference
Experimental	3	2.88	9.961	2.043	Significant (P<0.05)
Control	8	2.62			

Table 1 shows that Unpaired 't' test was calculated to analyze the effectiveness between experimental and control group post test scores on the level of pain among both the groups. The 't' value is 9.961 when compared to the table value (2.043) it is high. It shows that there is a significant difference found in the post test scores on the level of pain among experimental group elderly people with osteoarthritis and revealed that, Epsom salt application was effective to reduce the level of joint pain among elderly people with osteoarthritis in the experimental group.

Figure 1: Comparison of post test score on the level of pain among elderly people with osteoarthritis in experimental and control group.

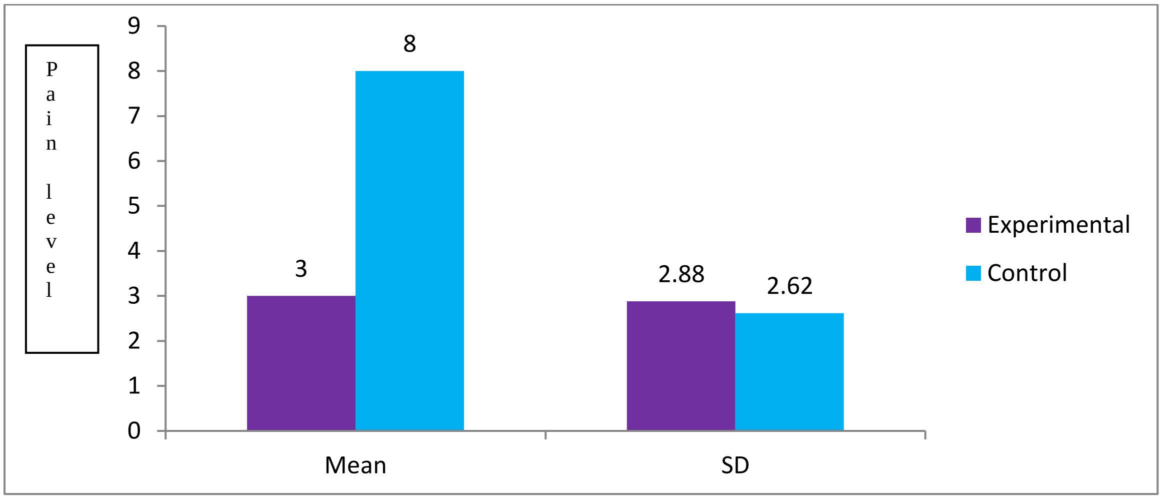

Table 2:Association between post test scores of level of joint pain among elderly people with osteoarthritis in experimental group with their selected demographic variables. $N_1 = 30$

S. No	Demographic variables		Frequency					Chi Square Value	Table value	Inference
			No pain	Mild	Moderate	Severe	Unbearable			
1	Age	a) 60-65	6	0	4	0	0	35.653	16.919	S
		b) 66-70	4	8	2	0	0			
		c) 71-75	2	0	0	0	0			
		d) 76-80	0	0	1	3	0			
2	Sex	a) Male	6	2	4	2	0	2.353	7.815	NS
		b) Female	6	6	3	1	0			
3	Occupation	a) Unemployed	10	8	6	2	0	2.390	7.815	NS
		b) Labor	2	0	1	1	0	8.6755	16.919	NS
		c) Professional	7	8	6	3	0			
4	Weight	a) Normal	4	0	0	0	0	0.5387	7.815	NS
		b) Over weight	1	0	1	0	0			
		c) Obesity	11	7	6	3	0			
5	Religion	a) Hindu	1	1	1	0	0	1.500	7.815	NS
		b) Muslim	6	1	2	1	0			
6	Family history	a) History	6	7	5	2	0	5.407	16.919	NS
		b) No history	7	5	6	3	0			
7	Age at marriage	a) Below20	3	2	1	0	0			
		b) 20-25 years	1	1	0	1	0			
		c) 26-30 years	1	0	0	0	0			
8	Duration of illness	a) Since 1week	0	0	0	0	0	14	7.815	S
		b) Since 1month	0	0	0	0	0			
		c) Since 1 year	12	8	7	3	0			
9	Exercise	a) Yes	2	0	1	1	0	2.390	7.815	NS
		b) No	10	8	6	2	0			

S*=Significant NS = Not Significant

Table 2 shows the Chi- square values to find out the association between post test scores on the levels of pain among elderly people with osteoarthritis with their demographic variables. The analysis shows that level of pain has not been influenced by sex, occupation, Religion, Family history of osteoarthritis, Age at marriage, Smoking habit, habit of alcoholism, practicing regular exercise but has been influenced by age and duration of illness. Hence, the findings revealed that there was no significant association between elderly people with osteoarthritis in experimental group with their demographic variables except the variables like age and duration of illness.

Table 3: Association between post test scores of level of joint pain among elderly people with osteoarthritis in control group with their selected demographic variables. $N_2 = 30$

S. No	Demographic variables		Frequency					Chi Square Value	Table value	Inference
			No pain	Mild	Moderate	Severe	Unbearable			
1	Age	a) 60-65	0	1	2	10	1	19.093	16.919	S
		b) 66-70	0	1	1	2	6			
		c) 71-75	0	0	0	3	0			
		d) 76-80	0	0	2	1	0			
2	Sex	a) Male	0	1	3	5	6	4.233	16.919	NS
		b) Female	0	1	0	9	5			
3	Occupation	a) Unemployed	0	1	3	13	9	3.47	7.815	NS
		b) Labor	0	0	0	0	0			
		c) Professional	0	1	0	1	2			
4	Weight	a) Normal	0	1	2	10	2	8.47	12.592	NS
		b) Over weight	0	1	1	2	6			
		c) Obesity	0	0	0	2	3			
5	Religion	a) Hindu	6	2	3	13	9	1.500	7.815	NS
		b) Muslim	0	0	0	1	2			
6	Family history	a) History	0	2	3	3	4	9.572	7.815	S
		b) No history	0	0	0	11	7			
7	Age at marriage	a) Below20	0	2	2	7	5	4.914	12.592	NS
		b) 20-25 years	0	0	0	6	4			
		c) 26-30 years	0	0	1	1	2			
8	Duration of illness	a) Since 1week	0	0	0	0	0	14	7.815	S
		b) Since 1month	0	0	0	0	0			
		c) Since 1 year	0	2	3	14	11			
9	Exercise	a) Yes	0	0	0	0	3	13.444	7.815	S
		b) No	0	2	3	14	8			

S*=Significant NS = Not Significant

Table 3 shows the Chi- square values to find out the association between post test scores on the levels of pain of control group elderly people with osteoarthritis with their demographic variables. The analysis infers that level of pain has not been influenced by sex, occupation, religion, family history of osteoarthritis, age at marriage but has been influenced by age, family history, performing regular exercise and duration of illness . Hence, the findings revealed that there was no significant association between elderly people with osteoarthritis in control group with their demographic variables except the variables like age, family history of osteoarthritis, duration of illness and practicing regular exercise.

V. Discussion

The study's objective was to assess the impact of epsam salt with glycerine on joint pain among elderly people with osteoarthritis. The study's findings show that epsam salt with glycerine is successful in reducing joint pain among elderly people with osteoarthritis.

The effects of applying hot water with Epsom salt vs. plain hot water on knee joint pain among senior women in certain urban regions was examined in a related study by Jaya Deshmukh et al., (2019). The pre-experimental, two-group, pre-test, and post-test designs were used in this investigation. On 60 samples, it was done. Samples for geriatric women between the ages of 65 and 85 were chosen using the non-probability purposive sampling technique. For 15 days, experimental group 1 received 100 ml of plain hot water plus 2 gram of epsom salt, while group 2 received 100 ml of hot water only. The researcher came to the conclusion that the two groups' levels of discomfort were nearly equal, but that the hot water group's experience of pain was greater. (12)

Epsom salt applied to the knee joint with hot water has been shown to be useful in treating knee joint discomfort, according to a 2019 study by Lavanya Sankar in Puducherry. For this study, a pre-experimental research approach was used. This study involved older adults over the age of 60. In total, 29 samples of elderly aged above 60 years were selected based on the purposive sampling technique. The severity of the pain was evaluated using the osteoarthritis rating scale. Out of 29 samples, the results showed that the pretest mean pain score was 2.93 with a standard deviation of 0.593, whereas the posttest mean pain score was 2.17 with a standard deviation of 0.384 following the application of Epsom salt to hot water. The efficiency was statistically evaluated using a paired t test, which revealed substantial statistical significance at p 0.001. (13)

TN Dr MGR Medical University in Tamil Nadu (2014) conducted a similar study to evaluate the efficacy of hot water compresses with epsom salt among senior women in Chennai who had knee joint pain. They came to the conclusion that applying a hot water compress with epsom salts to reduce muscle discomfort, as was demonstrated in that trial, would be more cost-effective, culturally acceptable, practicable at home safely, and have less adverse effects than medication intervention. (14)

This is also backed by a study done by Yildirim et al. (2010) at Cumhuriyet University in Turkey's Faculty of Health Sciences, Midwifery Department, to assess the impact of heat treatment on pain, stiffness, physical function, and quality of rheumatoid arthritis knee. In addition to regular medicine, the intervention group received daily 20-minute heat applications for four weeks. It was discovered that applying heat to rheumatoid arthritis patients' knees reduced their pain and level of disability. The sub aspects of patients' quality of life scores for physical function, pain, and overall health perception were found to be improved by the application of heat in 67 cases. (15)

An study by Pallavi Nimkar (2021) titled "Effectiveness of hot water application with epsom salt to alleviate knee joint pain in osteoarthritis among women dwelling in selected urban communities of Maharashtra state" was published in the European Journal of Molecular & Clinical Medicine. Hot water treatment with Epsom salt as a result of that study's findings revealed a highly significant difference (t=39.41 at po.ooo1) between the pretest and posttest, with a mean + SD of 2.68 0.67. Therefore, it can be said that applying hot water and epsom salt to the knees of urban women who have mild to moderate knee joint discomfort is useful. (16)

A study on the efficiency of using a warm compress with epsom salt to relieve women's knee joint discomfort was undertaken in 2016 by Shilpa Parag Satralkar. The post-test experimental group's result (1.03) was better than the per-test result (8.22).

Additionally, it was clear that the mean + SD post-test pain score was lower (1.48+0.93) than the per-test pain score (1.25+1.70). She came to the conclusion that applying warm Epsom salt to arthritic knee joints is quite good at reducing pain. (17)

VI. Conclusion

Epsom salt with its anti-inflammatory, and analgesics properties acts as a pain killing agent and does not have any side effects in addition to this epsom salt has very less side effects this can be used as complementary alternative medicine and has better effect then hormonal therapy and steroidal therapy also it is inexpensive and easily available and can be used as a home remedy in patients with arthritis.

The results of this study have implications for medical surgical nursing, nursing practises, nursing administration, nursing education, and nursing research.

The study's conclusions about the efficacy of applying epsom salt with glycerine to relieve knee joint pain can help health care professionals, especially nurses and doctors, become aware of it and put it into practice as a protocol. This method should be used by everyone for the benefit of people from lower socioeconomic classes because it is affordable but effective at easing knee joint pain in arthritis patients.

With the aid of a warm application of epsom salt and glycerine, which is easily accessible, inexpensive, free, and has anti-analgesic and anti-inflammatory activity, the nursing curriculum might incorporate the utilization of several modalities for the early relief of knee joint pain.

She/ He has the finest opportunity to provide nursing care and the best service to the community as a member of the medical nursing staff. She/ He maximizes the potential of her abilities to improve society while utilizing the resources at her disposal.

VII. Authors contribution statement

Janviben Kamaleshkumar Patel, Dharaben Prakashbhai Patel conceptualized, designed and gathers data. Bhoomika Kiritkumar Parmar, Viralkumar Raghubhai Desai analyzed these data and inputs were given N. Siva Subramanian and B. Mahalakshmi and Prakash D discussed the methodology, results and contributed to the final manuscript.

VIII. Conflict interest:

Conflict of interest none.

Acknowledgement

I thank president, Sankalchand Patel University, Gujarat, India for giving me an opportunity to conduct the research work.

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